

REMARKS/ARGUMENTS

Favorable reconsideration of the present application is respectfully requested.

Claims 5, 8 and 11-13 have been canceled.

Claim 1 has been amended to recite that the locus of a contact position of the first pin and the second pin is an involute of a circle, and a basic circle radius of an involute of the one of said two kinds of sets of pins is larger than a basic circle radius of an involute of the another of said two kinds of sets of pins. Basis for this is found in the specification from line 16 of page 18 to line 13 of page 19. As is there described, since the locus of movement of the first and second pins is an involute of a circle, the vibration amplitude can be smaller compared with the case where both contact surfaces are circular faces. Moreover, using plural kinds of sets of pins having different radii of involute basic circles prevents resonance caused by polygonal vibration.

Claims 1, 2 and 6 were newly rejected under 35 U.S.C. §102 as being anticipated by U.S. patent 6,432,011 (Kanehira et al). Additionally, dependent Claims 3-5, which recited the involute locus of movement now recited in Claim 1, were rejected under 35 U.S.C. §103 as being obvious over Kanehira et al.

Kanehira et al discloses a silent sprocket chain in which the chain links are connected by rocker pins composed of long pins L and short pins S. The long and short pins undergo rolling contact at their facing convex arcuate surfaces. There is no evidence that the locus of a contact position of the pins is an involute of a circle (col. 4, lines 37-44).

Two kinds of rocker joint pins are randomly provided in Kanehira et al: a first rocker joint pin R1 having a thick long pin and a thin short pin, and a second rocker joint pin R2 having a thin long pin and a thick short pin (col. 4, lines 48-63). By randomly providing the two kinds of rocker joint pins R1 and R2, the contact points of the rocker joint pins in the



links have different pitches (col. 5, lines 1-3), which changes the contact timing between the chain teeth and the meshing sprocket teeth, to reduce periodic noise (col. 5, lines 11-27).

The present invention, on the other hand, is not based on reducing noise by changing the contact timing between chain teeth and meshing sprocket teeth, but instead reduces vibration amplitude, and prevents resonance caused by polygonal vibration. To these ends, it makes the locus of a contact position of the pins an involute of a circle, and makes a basic circle radius of an involute of the one of two kinds of sets of pins larger than a basic circle radius of an involute of another of the two kinds of sets of pins.

As noted above, there is no evidence in Kanehira et al that the locus of a contact position of the pins in a pin joint is an involute of a circle, as is now recited in Claim 1. Nor does Kanehira et al vary the basic circle radii of the non-existent involutes as is also now claimed. Kanehira et al instead varies the joint pitches P to reduce noise by randomly arranging rocker joint pin pairs having arcuate pins of *different thicknesses*. Accordingly, it is respectfully submitted that the amended claims are not anticipated by Kanehira et al.

Concerning the rejection based on obviousness, this rejection is based on the rule that it is not unobvious to determine an optimum range or value by routine experimentation. Thus, if Kanehira et al had taught noise reduction by providing different basic circle radii of involutes of contact in randomly arranged pin joints, this doctrine could be used to conclude that the recitation of a particular optimum basic circle radius would be obvious through routine experimentation, in the absence of unexpected results. However, since Kanehira et al does **not** teach noise reduction by providing different basic circle radii of involutes of contact in randomly arranged pin joints, the failure of the prior art is not merely in failing to teach a particular optimum value that can be dismissed as the result of routine experimentation. Accordingly, it is also respectfully submitted that the amended claims are not obvious from Kanehira et al.

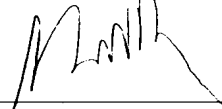


With respect to the rejections of dependent Claims 9-10 as being obvious over Kanehira et al in view of van Rooij et al or Mott, since the secondary references were cited only to teach the features of the dependent claims, and since these claims depend from Claim 1, it is respectfully submitted that all of the claims define over the cited prior art.

Applicants believe that the present application is in a condition for allowance and respectfully solicit an early notice of allowability.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.



---

Robert T. Pous  
Registration No. 29,099  
Attorney of Record

Customer Number

**22850**

Tel: (703) 413-3000  
Fax: (703) 413 -2220  
(OSMMN 08/07)